

Session 16



PROBLEMS & INVESTIGATIONS

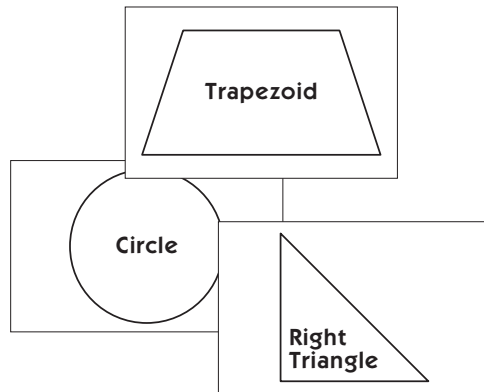
Shape Riddles

Overview

As the unit winds to a close, we return to shape sorting, this time in the form of riddles. This activity is quite similar to the Shape in My Pocket game, but this time children will have their very own sets of shapes to sort through as they work to identify the mystery shapes. You'll work through 2 different mystery shapes with your students and then introduce a new polydron activity before sending children out to Work Places.

Skills

- ★ observing and describing 2-dimensional shapes
- ★ using a variety of geometrical terms in context
- ★ sorting



You'll need

- ★ Shape Riddles 1 & 2 (Overhead II)
- ★ a piece of paper to cover the clues
- ★ Shape cards (Blackline 20, run a class set plus extras on cardstock.)
- ★ envelopes for storing Shape cards
- ★ scissors
- ★ the triangular prism 3-D Shape card, along with any triangular prisms students may have found or built out of polydrons during Session 7

Work Places in use

- G** Pattern Block Find & Fill
- H** Will It Make a Cube?
- I** Will It Make a Pyramid?
- J** How Many Triangles Does It Take?
- K** Four in a Row
- L** Will It Make a Triangular Prism? (See Work Places Setup, page 22)

Computer Activity 3

- ★ Making Mini-Quilts (optional)

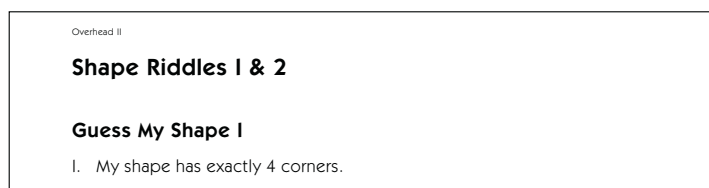
Note We suggest that you remove Pattern Block Puzzles from your Work Places before you add Will It Make a Triangular Prism? to keep the set at a steady total of 6, plus the optional computer activity.

Have your students help one another cut their Shape cards apart and put them in their envelopes. Each child should have a set of 9 Shape cards. When everyone is ready, have youngsters come to the rug with their Shape cards or work at their tables—wherever they're able to see the screen and lay out their

Session 16 Shape Riddles (cont.)

cards most easily. Ask them to spread out their cards so they can see all of them. Explain that you are going to give them a set of clues that will help them identify a mystery shape. You will display the clues one at a time at the overhead. Each time they get a new clue, they'll eliminate some of the shapes from their sets until they have only one left that matches the picture of the mystery shape on the overhead (if they've followed the clues carefully).

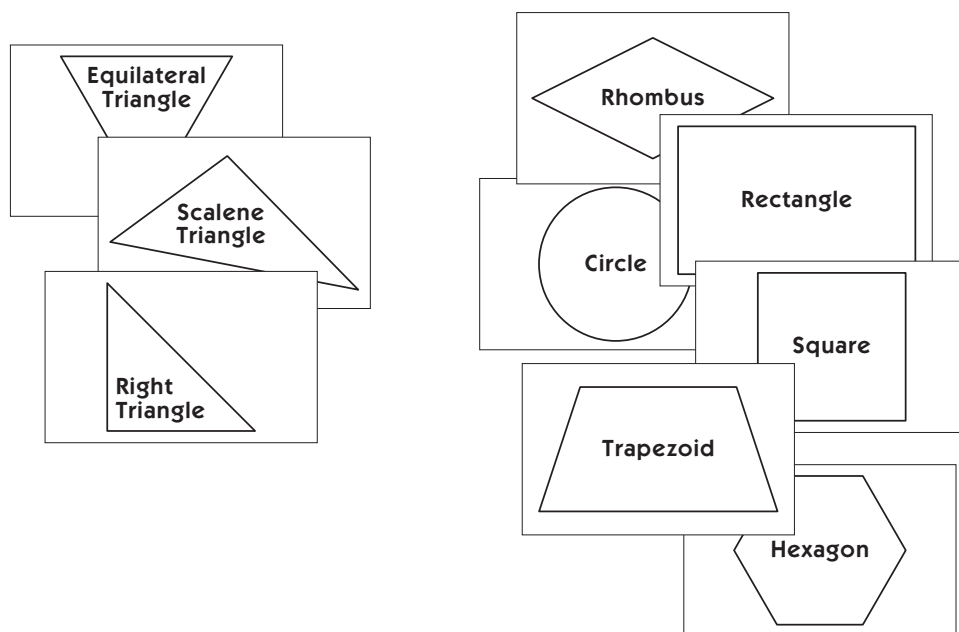
Teacher *I see that everyone has their shapes spread out in front of them. Looks like we're ready to begin. Here comes the first clue.*



Children *"My shape has 4 corners."*

Hmmmm—it can't be a triangle.

We can get rid of all the triangles. They all have 3 corners.



Teacher *Are there any others you can set aside?*

Children *The circle! It doesn't have any corners!*

And the hexagon too. It has 6 corners. That's too many.

We can keep the square and rectangle.

Keep the rhombus and trapezoid too!

Teacher *Here's the next clue. Which shapes can you set aside now?*

Session 16 Shape Riddles (cont.)

Overhead II

Shape Riddles I & 2

Guess My Shape I

1. My shape has exactly 4 corners.
2. The sides on my shape are all the same length.

Children Okay. So we can keep the square and the rhombus. We have to get rid of the rectangle. It has long sides and short sides. The trapezoid has different sizes of sides too. We have to get rid of it.



Melissa We only have 2 shapes left! Can we see the next clue?

Overhead II

Shape Riddles I & 2

Guess My Shape I

1. My shape has exactly 4 corners.
2. The sides on my shape are all the same length.
3. My shape has square corners.

Children It has square corners?
Is it the square?

Teacher Does either one of the remaining shapes have square corners?

Rebecca Sure! The square does.

Teacher How do you know?

Rebecca I remember that square corners are like the corners on a piece of paper. The diamond doesn't have corners like that—they're too skinny.

Teacher Is there any way you can check for sure?

Andrew Let's get a piece of paper and hold it up to our shapes. Yep! It matches the square.

Stephanie It must be the square. Is it? Can we see?

Session 16 Shape Riddles (cont.)

Before you show the mystery shape, you might have students review all the clues one more time, making sure the shape they've identified matches each one of them. Next, uncover the picture of the mystery shape to show the children that they've been very good detectives.

Overhead 11

Shape Riddles 1 & 2

Guess My Shape 1

1. My shape has exactly 4 corners.
2. The sides on my shape are all the same length.
3. My shape has square corners.

Can you guess my shape?

Square

It's the Square!

Finally, have students spread all their shapes out in front of themselves again in preparation for a new set of clues. Repeat the entire procedure with the clues and the shape at the bottom of Overhead 11. Once children have solved the second riddle, be sure they put the shapes back in their envelopes, label the envelopes with their names, and save them at school for Session 19, when you'll present two more shape riddles.



WORK PLACES

Introduce Work Place L

Overview

Before you send children out to Work Places, take a few minutes to introduce Will It Make a Triangular Prism?. This new Work Place uses polydrons and is similar to several the children have already seen.

Work Places in use

- G** Pattern Block Find & Fill
- H** Will It Make a Cube?
- I** Will It Make a Pyramid?
- J** How Many Triangles Does It Take?
- K** Four in a Row
- L** Will It Make a Triangular Prism? (See Work Places Setup, page 22)

Computer Activity 3

- ★ Making Mini-Quilts (optional)

Gather children into a discussion circle. Show them the triangular prism 3-D shape card, along with any triangular prisms they found or built out of


Session 16 Work Places

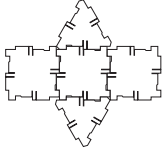
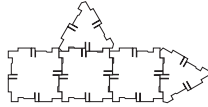
polydrons during Session 7. Discuss the shape and remind them that a triangular prism has 2 triangular and 3 rectangular faces—5 in all. Some children may readily identify this shape as one of the triangular pieces from the block corner.

After a bit of review, show students a copy of the Work Place record sheet (Blackline 21) and explain that they'll only need 3 square and 2 triangle polydrons, which they'll use over and over to test all 6 configurations. Copy the first configuration on the sheet as students watch and have them make predictions. Will this arrangement of polydrons fold into a triangular prism? Why or why not? After you've reached some sort of group consensus, circle the "Yes" or "No" at the top of the box and then fold the shapes and snap them together to see whether or not they really form a triangular prism. Mark your results by circling the "Yes" or "No" at the bottom of the box. Because this task is so similar to several of the other Work Places you've introduced recently, you probably won't have to do any further modeling to get the group started.

Blackline 21

NAME _____ DATE _____

Will It Make a Triangular Prism? 

<p>Guess <input checked="" type="radio"/> Yes <input type="radio"/> No</p>  <p>Really <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>Guess <input type="radio"/> Yes <input type="radio"/> No</p>  <p>Really <input type="radio"/> Yes <input type="radio"/> No</p>
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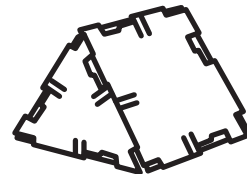


WORK PLACE 1

Will It Make A Triangular Prism?

This Work Place basket will need

- ★ 18 polydron squares
- ★ 12 polydron triangles
- ★ Will It Make a Triangular Prism?
(Blackline 21, run 30 copies and place in a folder)



Work Place Instructions

1. Get 3 polydron squares, 2 polydron triangles, and a record sheet.

Session 16 Work Places (cont.)

2. With your polydrons, copy the first net shown on the record sheet and make a prediction—will it turn into a triangular prism when you fold the pieces and connect them? If you think it will, circle the word “Yes” at the top of the first box. If not, circle the word “No.”

3. Fold the pieces and connect them where possible. What’s the result? Circle the “Yes” or the “No” at the bottom of the box to show your results. Repeat until you’ve tried all 6 nets.


Instructional Considerations for Will It Make a Triangular Prism?

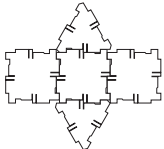
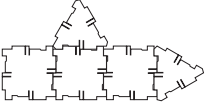
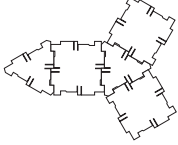
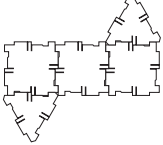
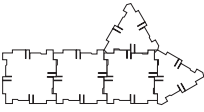
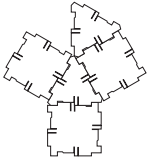
Here are the answers to each of the problems on the record sheet

Blackline 21

NAME _____ DATE _____

Will It Make a Triangular Prism?



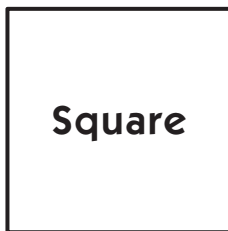
<p>Guess Yes No</p>  <p>Really <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>Guess Yes No</p>  <p>Really Yes <input checked="" type="radio"/> No</p>
<p>Guess Yes No</p>  <p>Really <input checked="" type="radio"/> Yes <input type="radio"/> No</p>	<p>Guess Yes No</p>  <p>Really <input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>Guess Yes No</p>  <p>Really Yes <input checked="" type="radio"/> No</p>	<p>Guess Yes No</p>  <p>Really Yes <input checked="" type="radio"/> No</p>

Shape Riddles I & 2

Guess My Shape I

1. My shape has exactly 4 corners.
2. The sides on my shape are all the same length.
3. My shape has square corners.

Can you guess my shape?

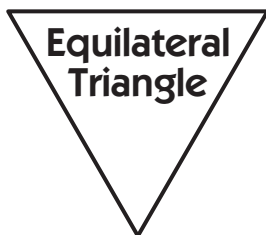


It's the Square!

Guess My Shape 2

1. My shape has only straight sides.
2. My shape has exactly 3 sides.
3. The sides on my shape are all the same length.

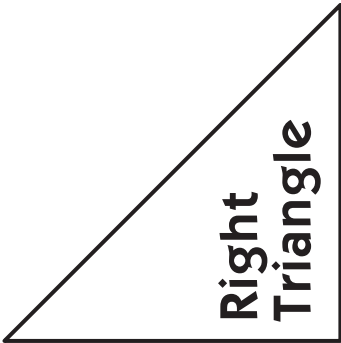

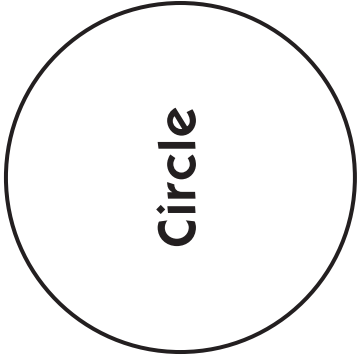


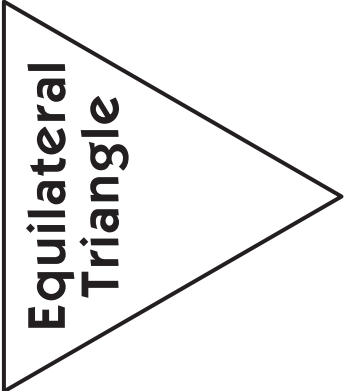
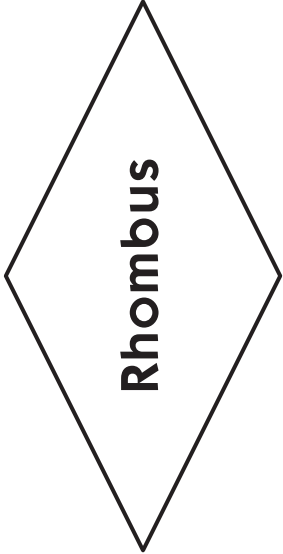
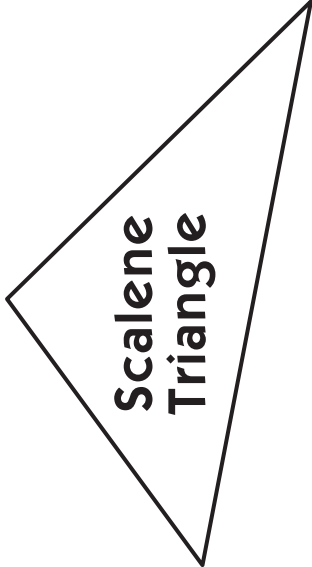
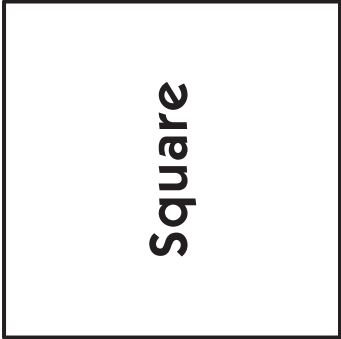
Can you guess my shape?



It's the Equilateral Triangle!

Shape cards

Run a class set on white cardstock. Have each child cut a sheet apart along the lines to create a set of cards to use for Shape Riddles.

 <p>Right Triangle</p>	 <p>Rectangle</p>	 <p>Circle</p>
 <p>Hexagon</p>	 <p>Trapezoid</p>	 <p>Equilateral Triangle</p>
 <p>Rhombus</p>	 <p>Scalene Triangle</p>	 <p>Square</p>